

Oct. 30, 1923.

G. GOUGHNOUR

1,472,215

ELECTRODE HOLDER

Filed June 7, 1920

Fig. 1.

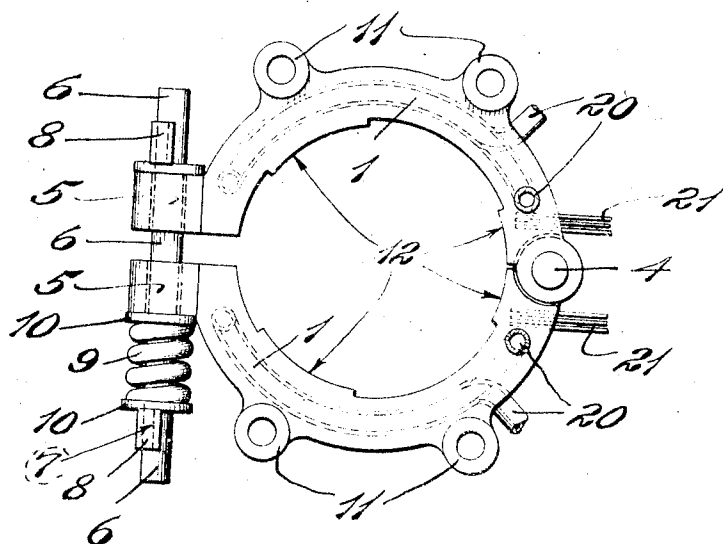


Fig. 2.

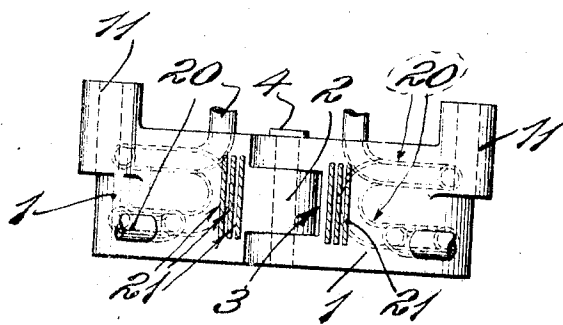
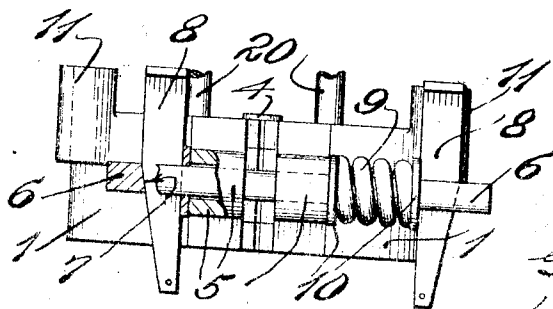


Fig. 3.



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His Atty.

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UNITED STATES PATENT OFFICE.

GEORGE GOUGHNOUR, OF CANTON, OHIO, ASSIGNOR TO THE TIMKEN ROLLER BEARING COMPANY, OF CANTON, OHIO, A CORPORATION OF OHIO.

ELECTRODE HOLDER.

Application filed June 7, 1920. Serial No. 337,077.

To all whom it may concern:

Be it known that I, GEORGE GOUGHNOUR, a citizen of the United States, and a resident of the city of Canton, in the county of Stark and State of Ohio, have invented a new and useful Improvement in Electrode Holders, of which the following is a specification.

My invention relates to devices for holding the electrodes of electric furnaces and has for its principal objects to devise a holder which is strong, durable and economical, which will hold electrodes of different sizes and irregular shapes and which will make close contact with the electrodes, thus avoiding arcing with its attendant disadvantages of overheating the electrode and the holder and preventing warping of the holder and binding of the electrode, and which is adapted to enable electrodes to be removed and replaced easily, quickly and without danger to the workman. The invention consists principally in a hinged electrode holder having a locking device which dispenses with the use of threaded bolts. The invention further consists in the parts and combinations of parts hereinafter described and claimed.

In the drawing which forms part of this specification and wherein like reference characters indicate like parts wherever they occur.

Fig. 1 is a plan view of an electrode holder embodying my invention;

Fig. 2 is a rear elevation thereof; and

Fig. 3 is a front elevation thereof, certain parts being broken away.

My electrode holder comprises members 1 of substantially semicircular shape hinged together. The hinge end of one of said members 1 has a tongue 2 that works in a recess 3 provided therefor in the other of said members and a pintle 4 passes through holes in the overlapping portions of said end portions to hinge the main members of the holder together.

Diametrically opposite the hinge, the holder members are provided with outwardly projecting lugs 5 that have aligned holes therethrough adapted to receive a locking bar 6. Said bar 6 has slots 7 therein near each end which slots are adapted to receive wedges or locking pins 8. The slots 7 and pins 8 are tapered so that, when the pins are driven into the slots, the parts of the holder

are brought together to firmly engage the electrode. A heavy spring 9 is arranged on the locking bar 6 between one of the projections 5 of the holder and a locking pin 8. Washers 10 are mounted on the locking bar at each end of the spring 9 to form abutments therefor. The holder is provided with suitable lugs 11 or other means by which it may be bolted or otherwise secured to a bracket or similar supporting member.

Preferably the inner side of the electrode is provided with raised portions 12 constituting spaced contact members adapted to engage an electrode.

The body members 1 of the holder have channelways therethrough lined with suitable pipe 20 and adapted to allow water to flow through in order to cool the holder when in use. Bus bars 21 are cast in the holder or otherwise secured thereto in order to supply the current which the holder transmits to the electrode.

The holder hereinbefore described has numerous advantages. It is especially adapted for holding the carbon electrodes commonly used in electric furnaces. If one part of the holder is broken, it can be replaced, without the necessity of scrapping the entire holder. With ordinary holders not provided with a hinge, it is necessary to slit the holder or otherwise provide a slight degree of elasticity so that the holder can firmly grasp the electrode. Thus the holder is weakened and breakages are frequent. Further, if, as frequently is the case, the electrode is not round, the holder will make poor contact with it, resulting in unsatisfactory operation and creating a tendency for the holder to warp and thus prevent adjustment of the electrode. These disadvantages are avoided by my construction. As above suggested, my holder can accommodate various sizes of electrodes, it is strong and durable, and it makes better contact with the electrode than the holders commonly used. Providing the holder with spaced contact points permits the holder to accommodate electrodes of varying sizes and irregular shapes and minimizes the tendency of the holder to warp. The locking device hereinbefore described enables the operations of changing electrodes, tightening or loosening the holder, lowering the electrode in the holder and the like to be

easily and quickly carried out, whereas locking devices that use bolts frequently burn fast to the holder and thus prevent adjustment of the holder and are difficult to remove and my device also eliminates another great practical disadvantage in the use of bolts, namely, the fact that the removal and tightening of such bolts requires the use of a wrench which is likely to slip and cause serious accidents. The fact that the bus bars are cast in the holder prevents loss of current between the bus bars and the holder.

What I claim is:

1. An electrode holder for electric furnaces comprising substantially semi-circular members pivotally secured together at one end and provided with resilient means adapted to force the free ends of said members together, said members having bus bars cast therein to supply electric current to said holder.

2. An electrode holder comprising members pivotally secured together, and having perforated projections on their free ends, a slotted locking bar passing through said holes in said projections, locking pins in said locking bar slots, and a resilient member arranged between one of said pins and one of said projections, whereby said holder members are forced together.

3. An electrode holder comprising members pivotally secured together, and having perforated projections on their free ends, a slotted locking bar passing through said holes in said projections, locking pins in said locking bar slots, and a spring arranged on said locking bar between one of said pins and one of said projections, whereby said holder members are forced together.

4. An electrode holder comprising members pivotally secured together, and having perforated projections on their free ends, a slotted locking bar passing through said holes in said projections, tapered locking pins in said locking bar slots; and a spring arranged on said locking bar between one of said pins and one of said projections, whereby said holder members are forced together.

5. An electrode holder comprising members pivotally secured together and having perforated projections on their free ends, a locking bar passing through said holes in said projections and having tapered slots near each end thereof, tapered locking pins in said slots, and a resilient member arranged between one of said pins and one of said projections.

Signed at Canton, Ohio, this 1st day of June, 1920.

GEORGE GOUGHNOUR.